WHAT IS CLAIMED IS:

1. An optical communication system having switch nodes and add/drop nodes, characterized in that data are switched and propagate through the system as optical bursts transmitted in waveslots of fixed duration and fixed positions in repetitive frames.

2. The optical communication system of claim 1, wherein said optical bursts have different predetermined combinations of wavelengths.

3. The optical communication system as defined in claim 2, wherein the data transmitted as optical bursts have rates lower than that of transmission rates between nodes.

4. The optical communication system of claim 1, wherein the switch nodes are photonic and route a repetitive frame in its entirety between input and output ports of a switch node.

5. The optical communication system of claims 2, wherein the switch nodes are photonic and route a repetitive frame in its entirety between input and output ports of a switch node.

6. The optical communication system of claim 3, wherein the switch nodes are photonic and route a repetitive frame in its entirety between input and output ports of a switch node.

7. The optical communication system of claim 3, wherein no two waveslots on a single transmission medium have optical bursts identical in wavelengths and timeslots.

8. The optical communication system of claim 7, wherein a plurality of transmission media carry a plurality of waveslots having identical wavelengths and timeslots propagating on separate transmission media.

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